VOLVO

Construction Equipment

Service Information

Document Title:	Function Group:	Information Type:	Date:
Description	**000**	**Service Information**	**12-12-2023**
Profile:			

Description

Articulated hauler A40 consists of two main sections, the tractor unit and the load unit. The two units are joined by the frame joint which allows movement about a vertical axis for steering. The frame joint also allows the two units to twist and move in relation to each other along a horizontal axis.
The tractor unit consists of a six-cylinder diesel engine, transmission and dropbox as well as a drive axle. The cab is rubber-mounted to the frame. The frame is independently suspended in relation to the drive axle.

The load unit consists of a frame, elevation load body, as well as a front and rear drive axle, which are linked by the bogie suspension.

The hauler has constant 4-wheel drive with the possibility of engaging and disengaging
6-wheel drive. There is a longitudinal differential lock in the dropbox and there are differential locks on all drive axles.

Figure 1

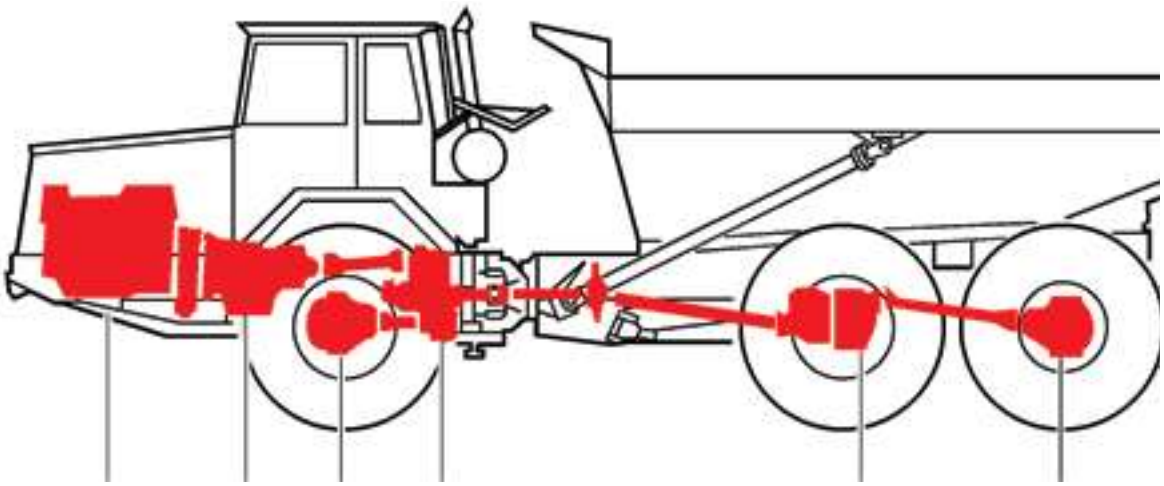


Figure 2
Type and "product no.", articulated hauler A40

1	TD122 KFE – "499168"	4	FL802 – "22502"
2	PT1760–"1650001	5	AHW 71D – "23747"
3	AHW 71C – "23746"	6	AHW 71E – "23748"

This is the sample of the manual if you need complete
manual
Click Here to download

VOLVO

Construction Equipment

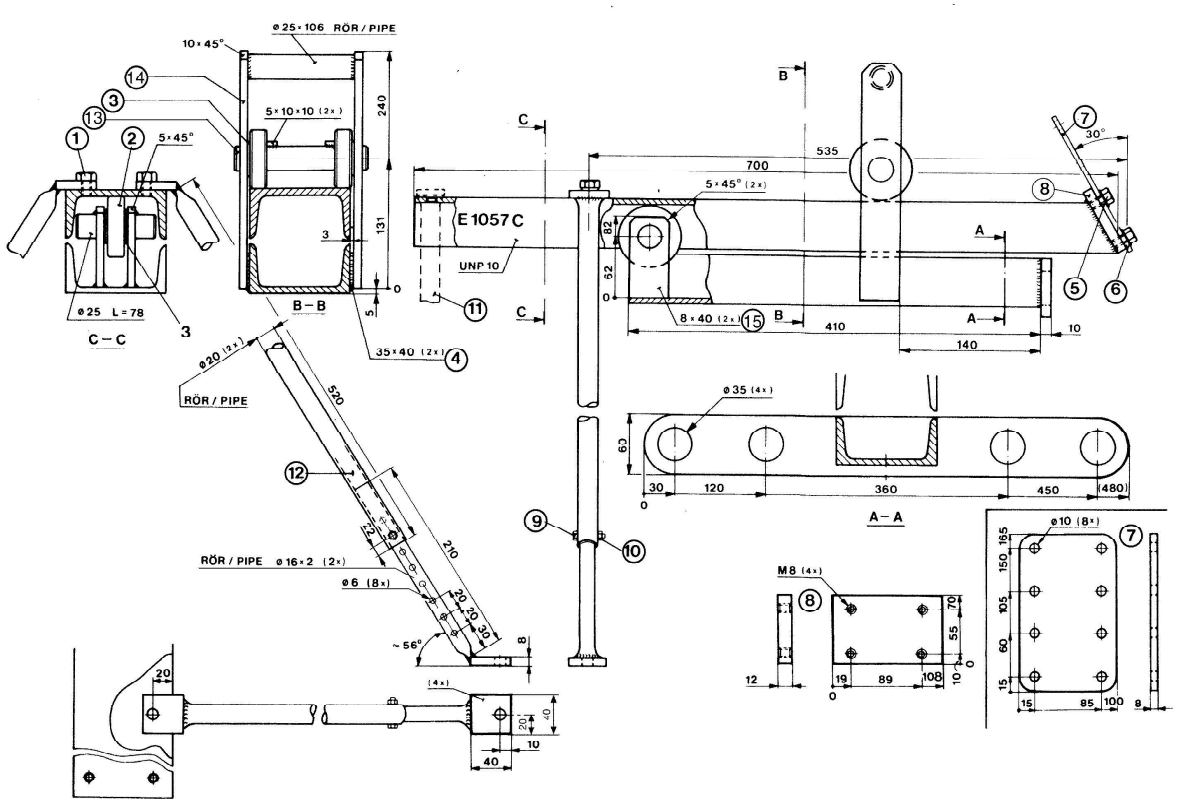
Service Information

Document Title: **Drawings of E-tools that can be made in your own workshop**	Function Group: **080**	Information Type: **Service Information**	Date: **12-12-2023**
Profile:			

Drawings of E-tools that can be made in your own workshop

Measurements on all drawings are given in mm unless otherwise indicated.

E1057C, Transmission lifting device



igure 1

E 1057C, Transmission lifting device

1 Bolt, 2 pcs. M10x16 (part no. 940148)	7 Plate	13 Pipe Ø25, l=130 mm
2 Ball bearings, 3 pcs. SKF 6305 11023	8 Plate	14 Flat bar, 2 pcs 8x40 mm

3 Washer, 4 pcs 25/35 mm t=2 mm	9 Bolt, 2 pcs. M5x25 (part no. 955249)	15 Flat bar, 2 pcs 8x40 mm
4 Plate, 2 pcs. 35x40 t=3 mm	10 Nut, 2 pcs. M5 (part no. 955780)	
5 Bolt, 4 pcs. M8x16 (part no. 955294)	11 Alternative position for support leg	
6 Washer, 4 pcs. 8.5/16 mm (part no. 955894)	12 Support leg, adjustable length, 540–680 mm	

E 1625 T-handle Allen key (1/4")

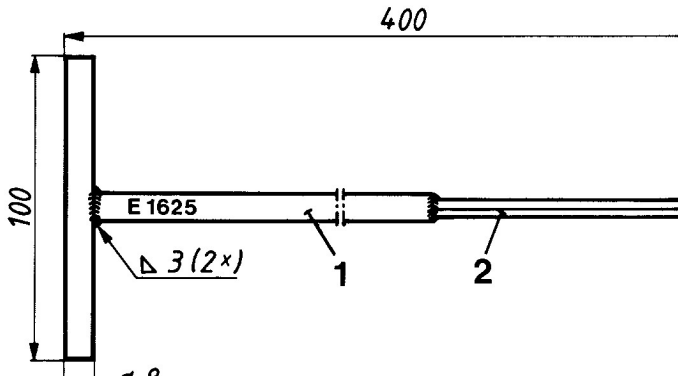


Figure 2
E 1625 T-handle Allen key (1/4")

1. Pipe Ø=8 mm (0.315 in)
2. Allen key, 1/4"

E 1626 T-handle Allen key (3/16")

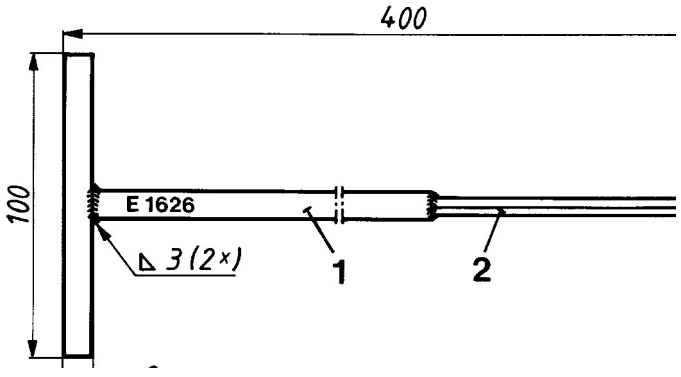


Figure 3
E 1626 T-handle Allen key (3/16")

1. Pipe Ø=8 mm (0.315 in)
2. Allen key, 3/16"

E1645, Load body support

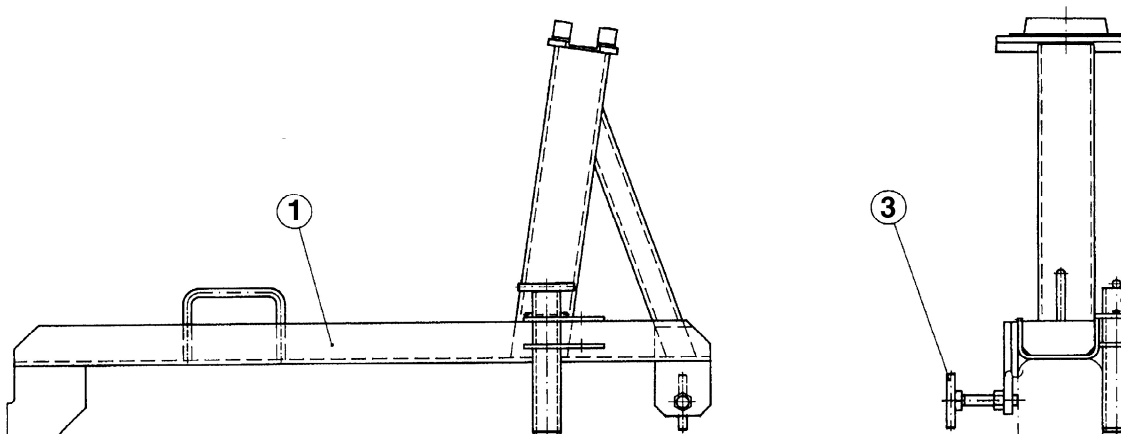


Figure 4
E1645, Load body support

1	Load body support, 1 pc.	see welding and detail drawing, [Invalid linktarget] and [Invalid linktarget]
2	Plug, 1 pc.	see detail drawing, [Invalid linktarget]
3	Lock bolt, 1 pc.	see detail drawing, [Invalid linktarget]

E1645-1, welding drawing

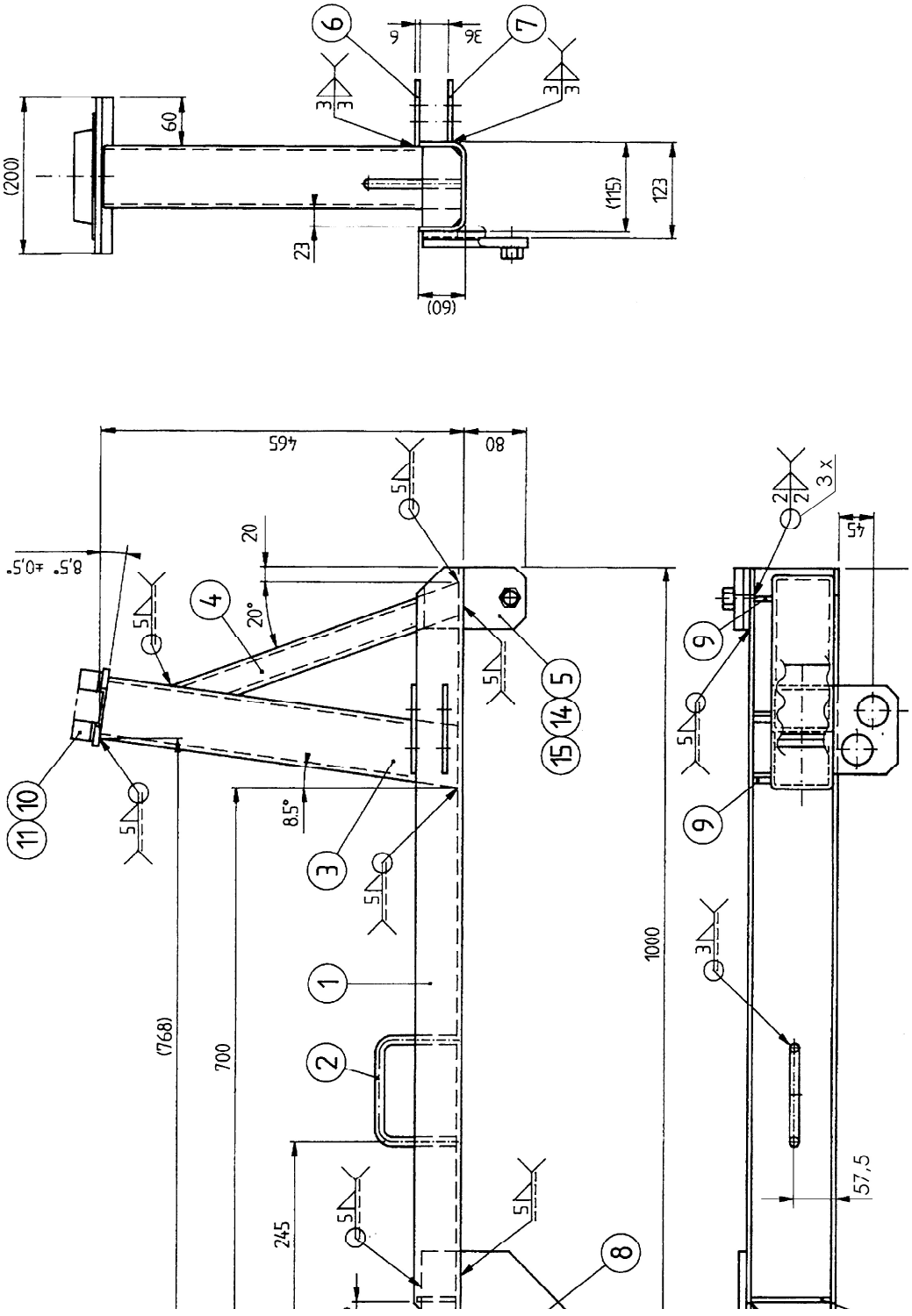


Figure 5
E1645-1

Materials list, see detail drawing, [Invalid linktarget].

E1645-2, detail drawing

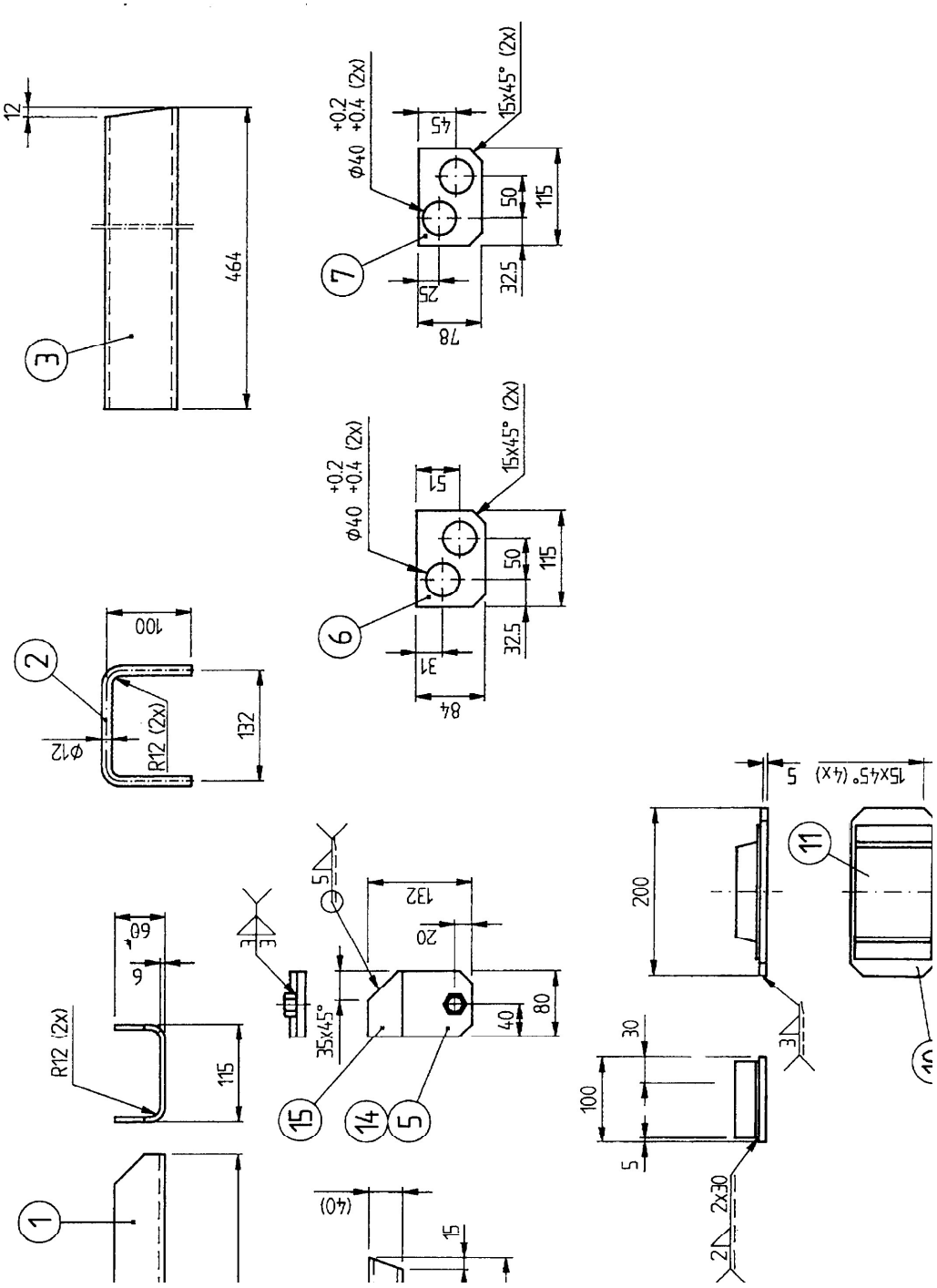


Figure 6
E1645-2

1	Plate	1 pc., material 2132	6x207x990	8	Flat bar	1 pc., 2132	6x78x115
2	Round bar	1 pc., 2172	Ø12 L=317	9	Flat bar	3 pcs., 2132	110x10 L=187
3	Square pipe	1 pc., 2132	80x80x6 L=464	10	Flat bar	1 pc., 2132	50x6 L=23
4	Square pipe	1 pc., 2132	80x80x5 L=390	11	Rubber cushion		100x8 L=200
5	Flat bar	1 pc., 2132	80x10 L=132	13	Flat bar	1 pc., 2132	Part no. 11049133-9 L=90
6	Plate	1 pc., 2132	6x84x115	14	Welding nut		50x6 L=103

7	Plate	1 pc., 2132	6x78x115	15	Flat bar	1 pc., 2132	M6M 16

E1645-3, detail drawing

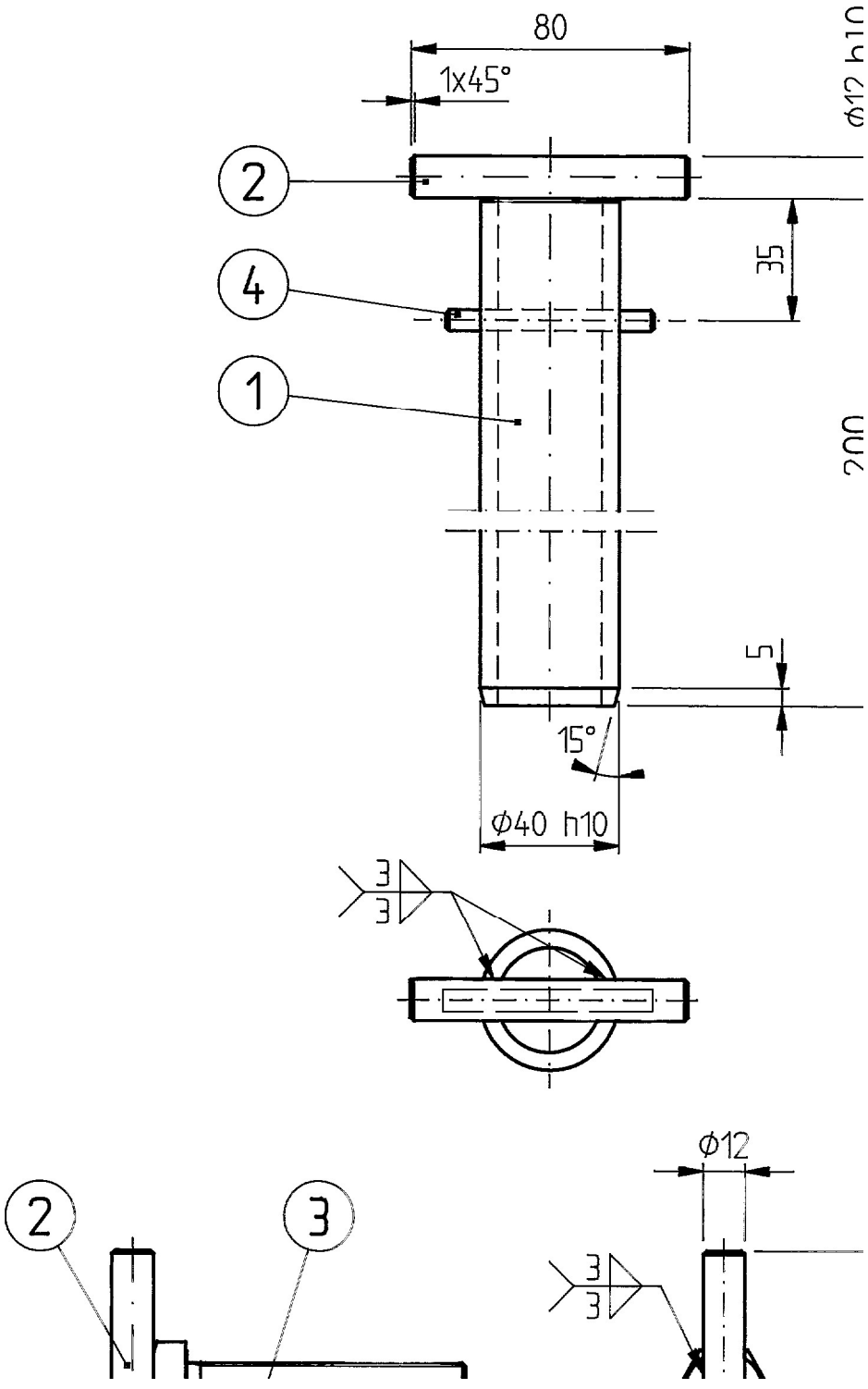


Figure 7
E1645-3

1. Pipe, 1 pc., material 2172 Ø45/28, L=200

2. Round bar, 2 pcs., material 2172, Ø12, h=10, L=80
3. Bolt, 1 pc., M6S, 16x80 fully threaded
4. Spring pin FRP6x60

E1750, Differential lock adjusting tool

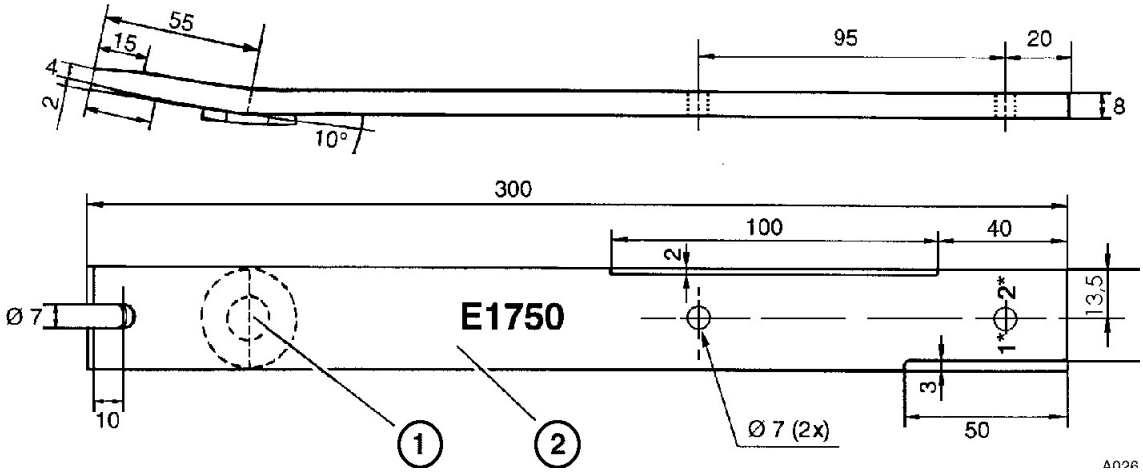


Figure 8
E1750, Differential lock adjusting tool

1. BRB Ø30 x Ø 8 x 2 To be welded in hole
2. Flat bar 30 x 8, L = 300

* punched into material

E 1751, Lifting device

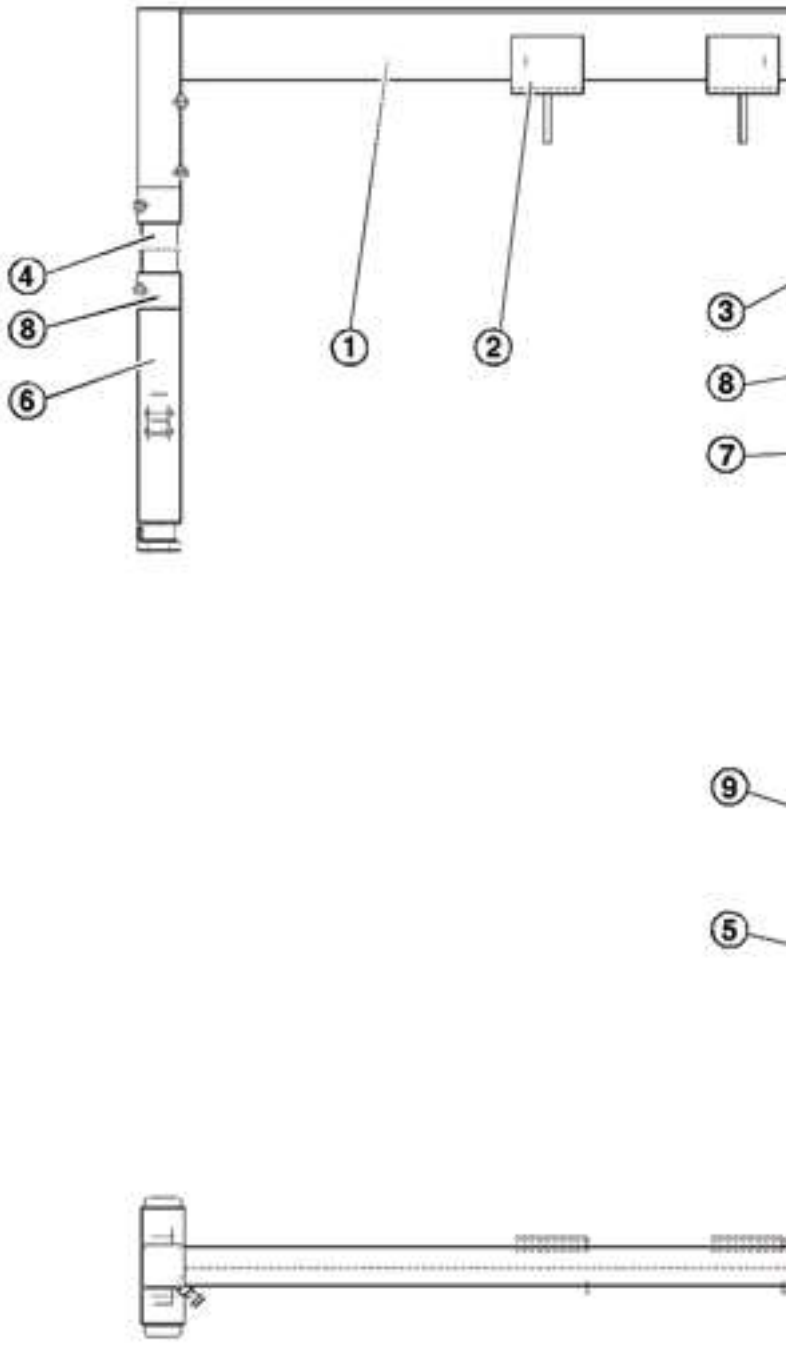


Figure 9
E1751 Lifting device

1	E1751-1	6	E1751-8
2	E1751-4	7	E1751-6
3	E1751-5	8	E1751-3
4	E1751-2	9	M12x30

5	E1751-7		

E1751-1, -2, -3, detail drawing

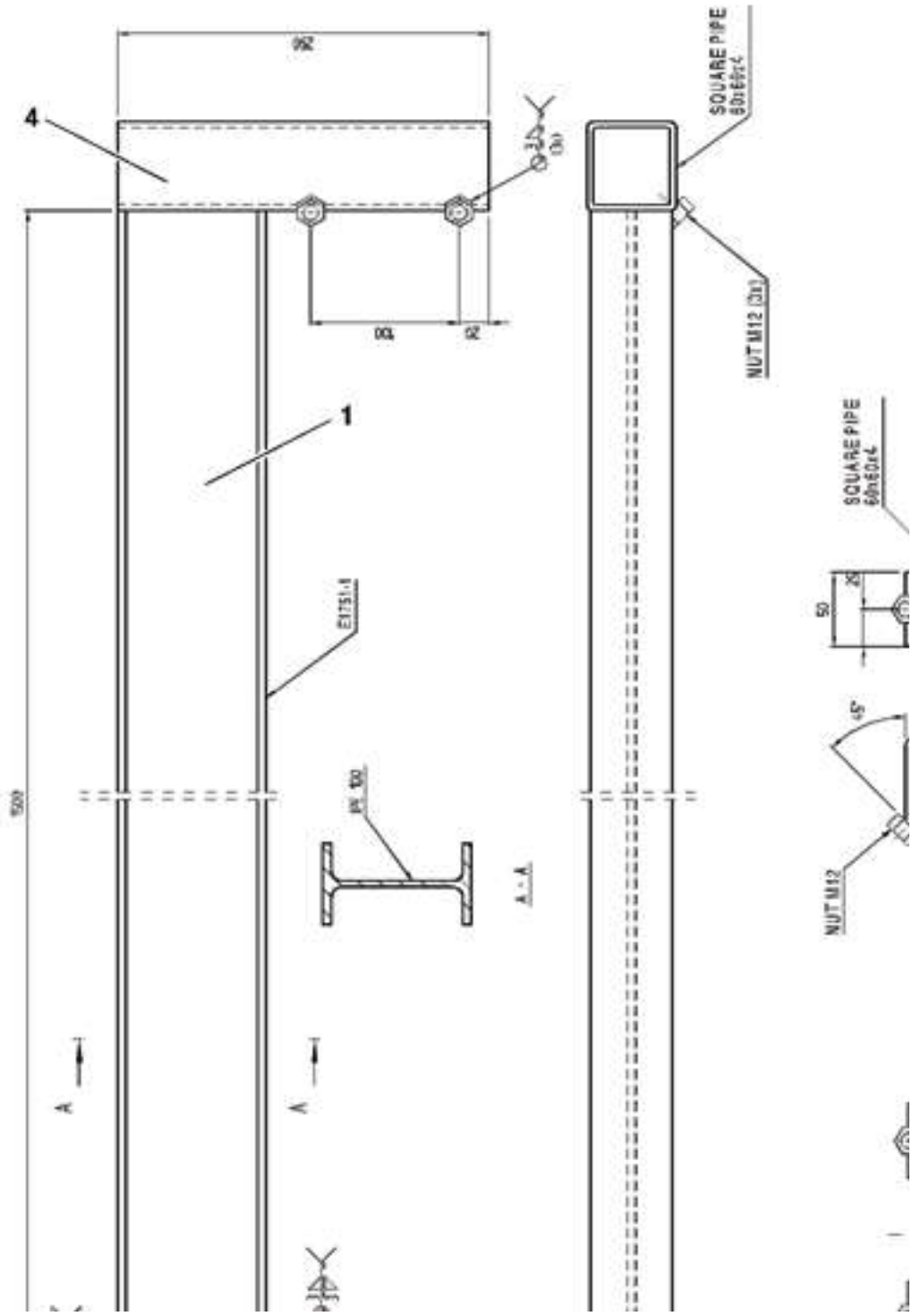


Figure 10

1	IPE 100	3	Nut M12 (3x)

2	Square pipe 60 x 60 x 4, L = 96	4	Square pipe 60 x 60 x 4, L = 250

E1751-4, detail drawing

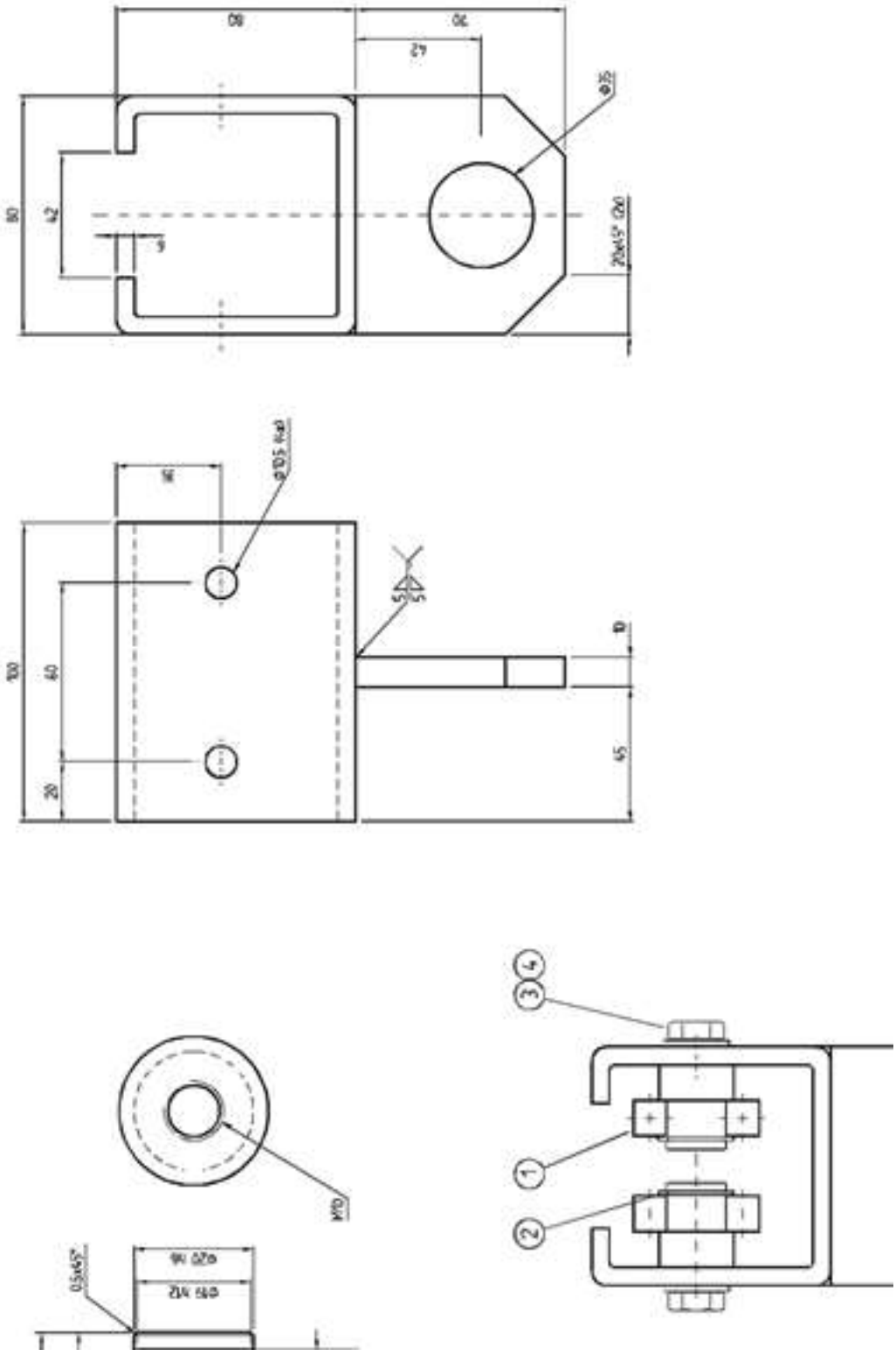


Figure 11
E1751-4, detail drawing

1	Ball bearings, 4 pcs. 6004 RS	3	Bolt, 4 pcs. M10x20
2	Retaining ring, 4 pcs. Sqa 20	4	Washer, 4 pcs. BRB 10.5x2x22

E1751, -5, -6, detail drawing

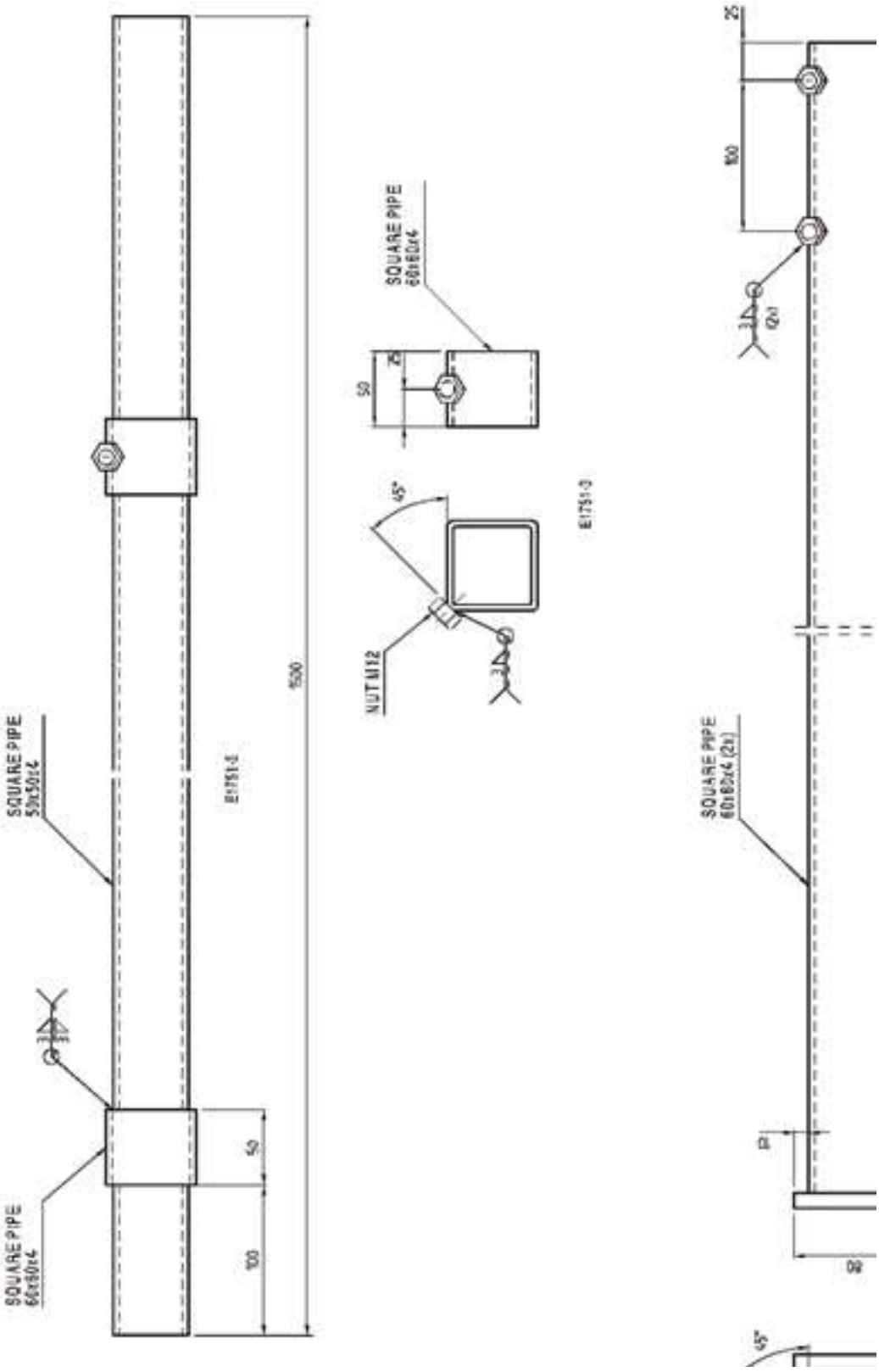
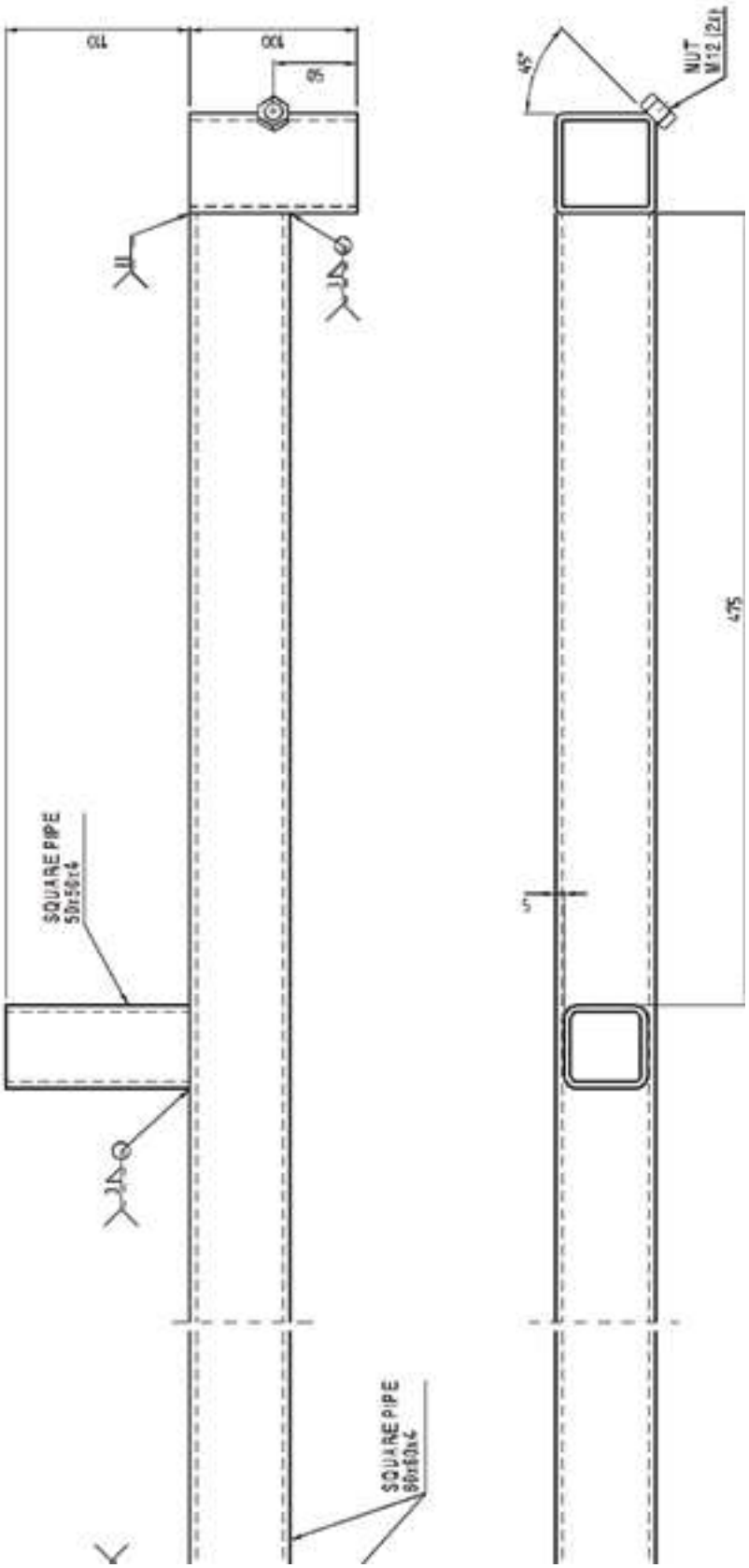


Figure 12
E1751-5, -6, detail drawing
E1751-7, detail drawing



This is the sample of the manual if you need complete
manual
Click Here to download

Figure 13
E1751-7, detail drawing

E1751-8, composite drawing

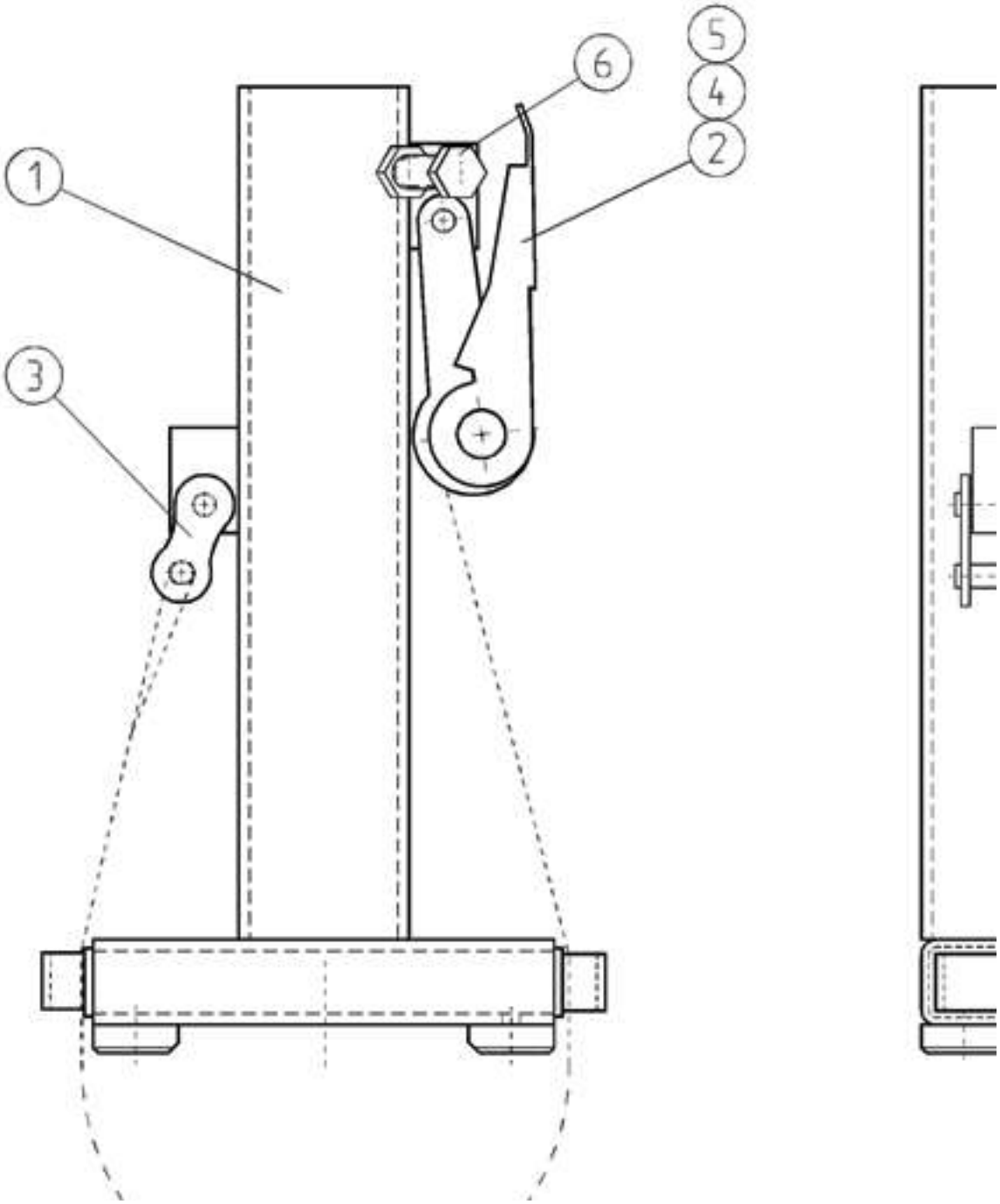


Figure 14
E1751-8, composite drawing

1. E1751-8
2. Lock lever
3. Straight coupling link with spring ISO 16B-1, 1"
4. CHB-bolt, steel 8x40
5. Split pin 2x25

6. Bolt M12x30

E1751-8, detail drawings

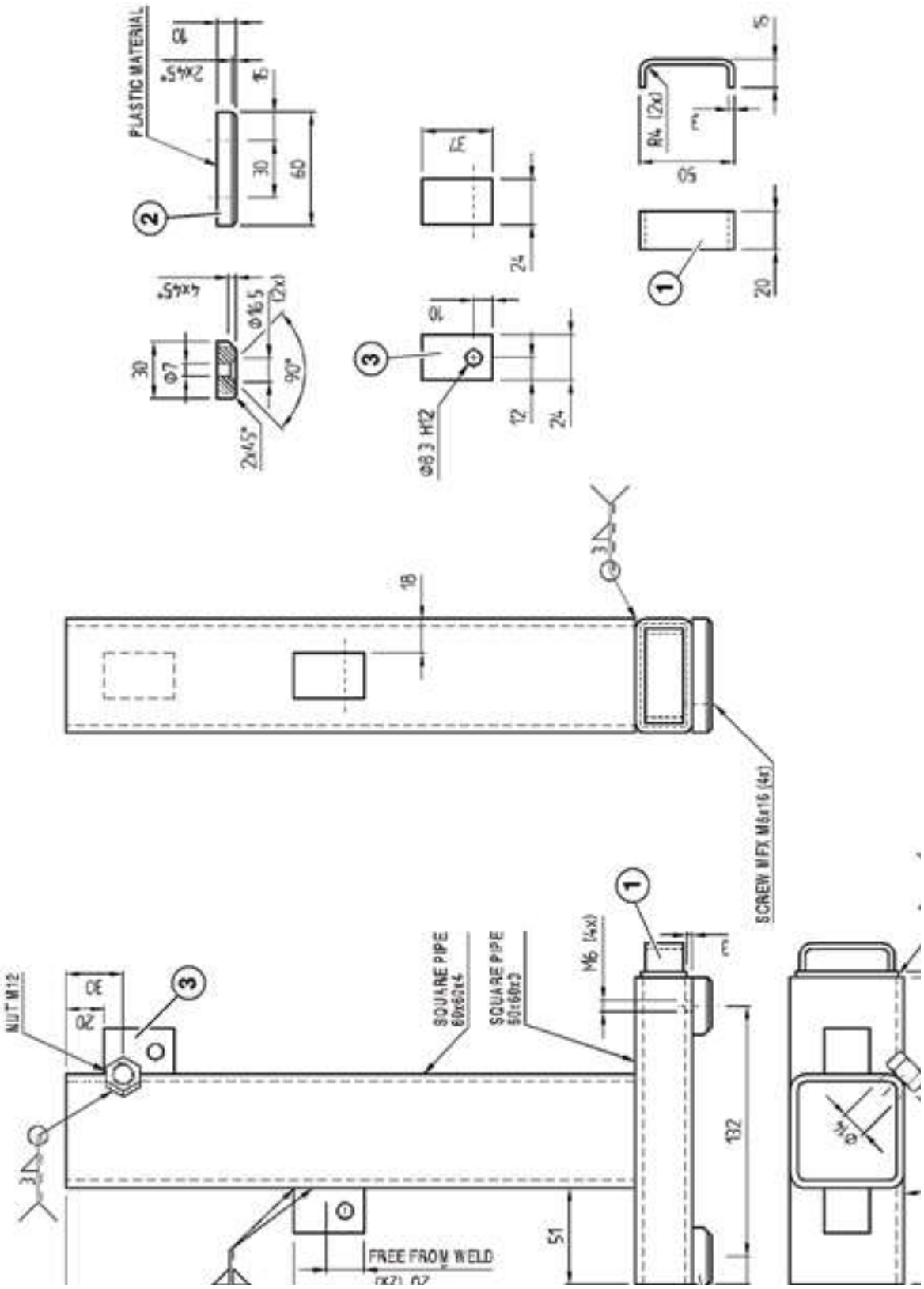


Figure 15

E1751-8, detail drawing

E1752, Lifting device

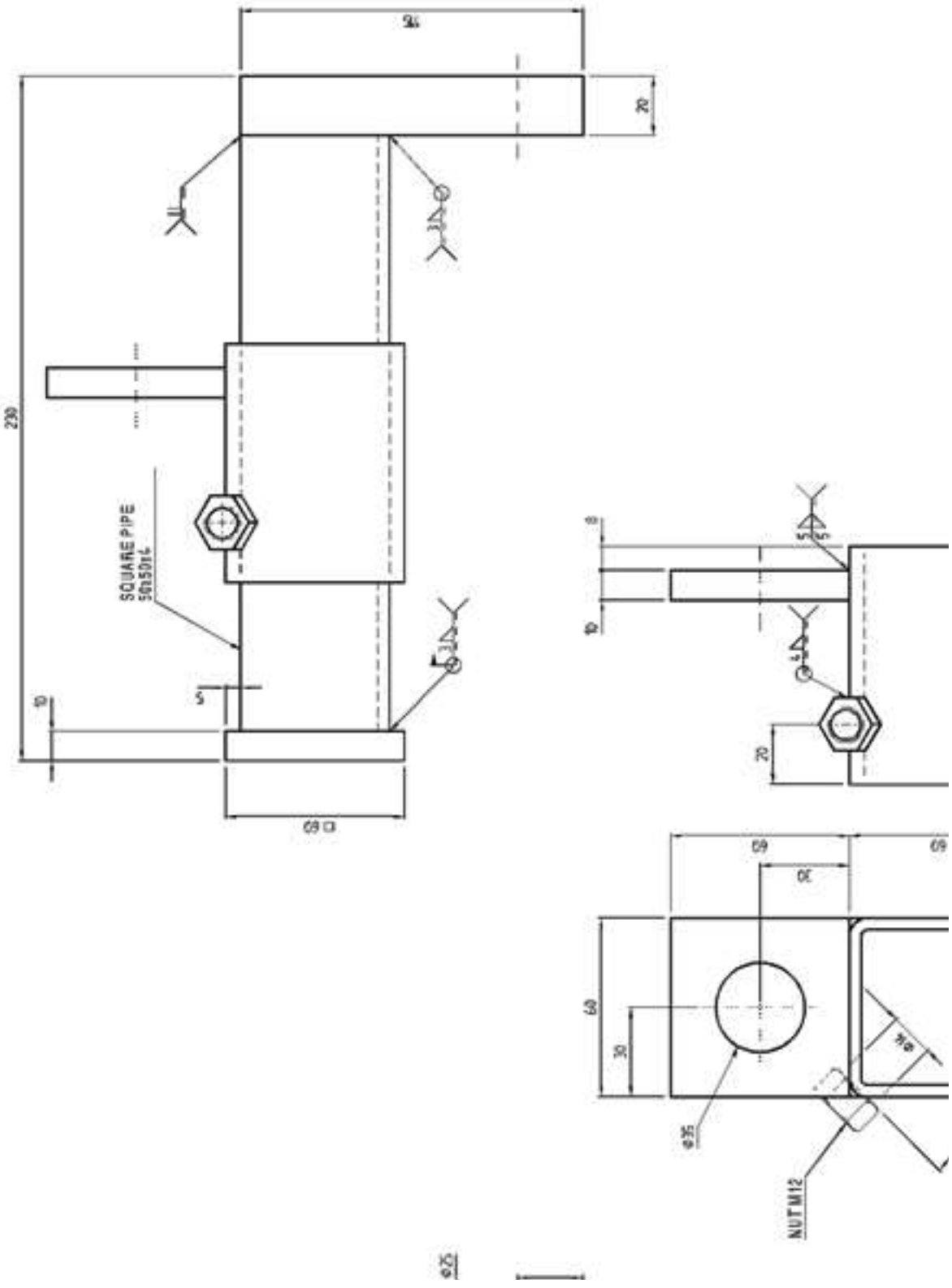


Figure 16
E1752, Lifting device

Document Title: **Special tools for the drivetrain**	Function Group: **080**	Information Type: **Service Information**	Date: **12-12-2023**
Profile:			

Special tools for the drivetrain

WARNING

Please pay attention to the safety instructions in the Operator's Manuals and Service Manuals concerned.

In this section, special tools for the drivetrain are described. These tools can be ordered from Volvo Construction Equipment Parts.

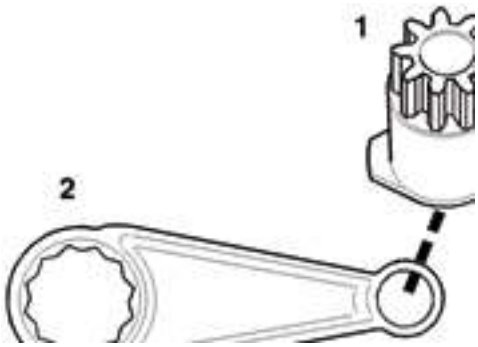


Figure 1

1	Gear part no. 999 3590
2	Wrench part no. 999 3581, 60 mm (2.362 in) 999 3882, **Deep socket** 60 mm (2.362 in), 999 3881, 65 mm(2.56 in), 999 3582, 67 mm (2 5/8"), 999 3585, 75 mm. (2.95 in)

Special tools for drive flanges

Three types of special tools are used.
Gear, wrench and gear segment, see [Invalid linktarget] and [Invalid linktarget] .

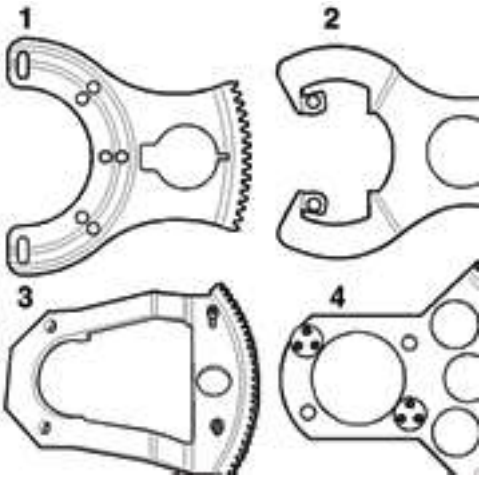


Figure 2

1. Gear segment, part no. 999 3586
2. Gear segment, part no. 999 3587
3. Gear segment, part no. 999 3847
4. Gear segment, part no. 999 3868

Variations of these tools are shown in the following table.

Tools	**Part no.**	**Note**
Gear-driven	999 3590	Used in combination with all wrenches
Wrench	999 3581 999 3882 999 3881 999 3582 999 3585	dimension 60 mm (2.362 in) dimension 60 mm (2.362 in) **deep socket** dimension 65 mm (2.56 in) dimension 67 mm (2 5/8") dimension 75 mm (2.95 in)
Gear segment	999 3586 999 3587 999 3847 999 3868	999 3847 is delivered with spacers. Spacers are needed in some tool combinations to achieve correct fit against the gear.

The tools are combined according to [Invalid linktarget].

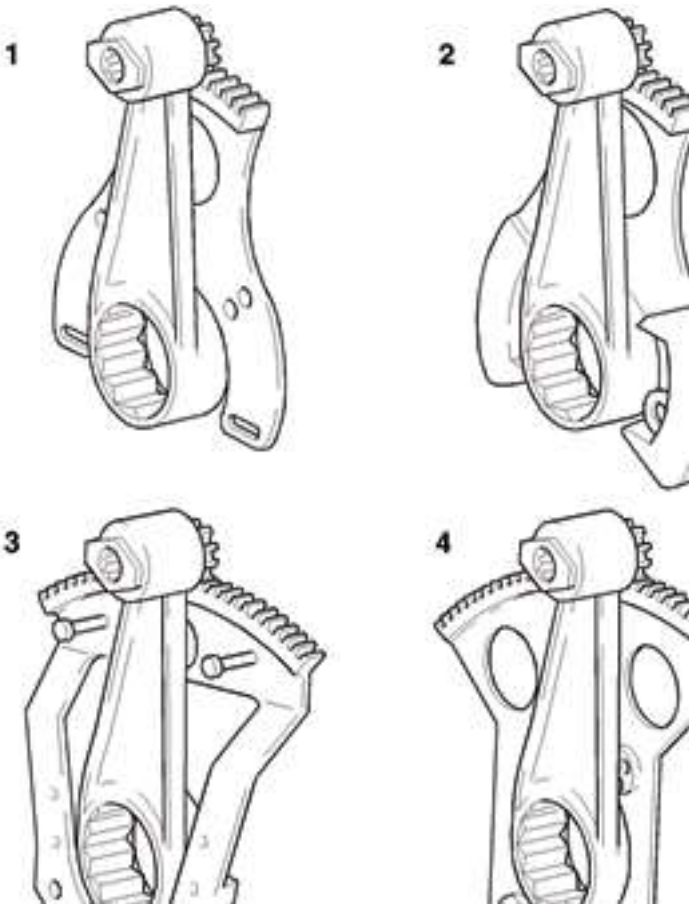


Figure 3

1. Combination 1, gear 999 3590, gear segment 999 3586, wrench varies.
2. Combination 2, gear 999 3590, gear segment 999 3587, wrench varies.
3. Combination 3, gear 999 3590, gear segment 999 3847, wrench varies.
4. Combination 4, gear 999 3590, gear segment 999 3868, wrench varies.

Propeller shafts on machines with 6x6 drive

[Invalid linktarget] show the drivetrain and the connections between the propeller shafts.

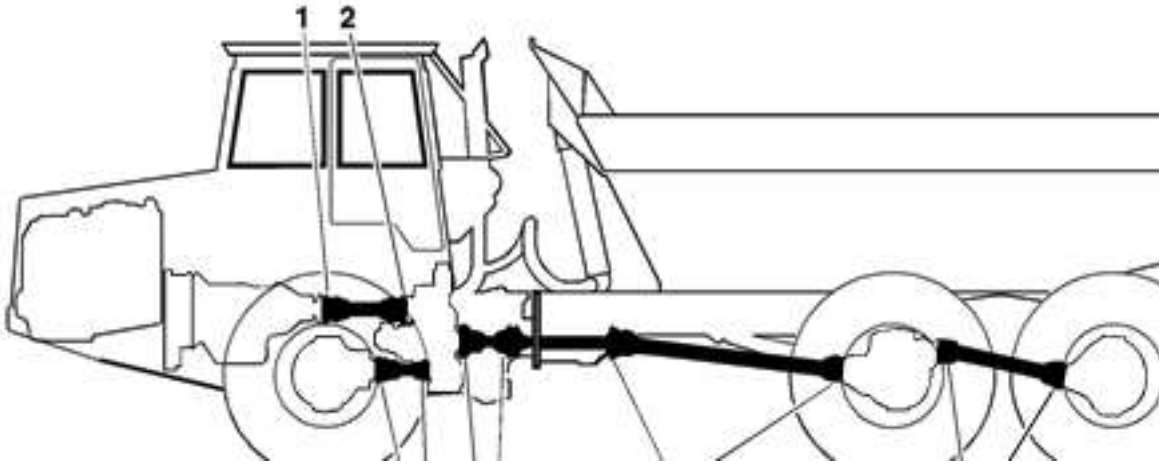


Figure 4
Parts of the drivetrain

1	Output shaft, transmission	6	Input shaft, hitch
2	Input shaft, transmission	7	Output shaft, hitch
3	Front output shaft, dropbox	8	Input shaft, 1st bogie axle
4	Input shaft, front axle	9	Output shaft, 1st bogie axle
5	Rear output shaft, dropbox	10	Input shaft, 2nd bogie axle

Summary of tools for the machine type

The following table is a summary of all tool combinations for respective propeller shaft. The column "Pos. in figure" refers to the numbered positions on the propeller shafts in [Invalid linktarget]. The first three numbers in the part number have been omitted for easier reading.

A40			
Pos. in figure	**Gear-driven 999...**	**Gear segment 999...**	**Wrench 999..**
1	3 Allen head bolts 10 mm (0.39 in), standard tools		
2	3 Allen head bolts 10 mm (0.39 in), standard tools		
3	3 Allen head bolts 10 mm (0.39 in), standard tools		
4	3590	3847	3581
5	3 Allen head bolts 10 mm (0.39 in), standard tools		
6	3 Allen head bolts 10 mm (0.39 in), standard tools		
7	3 Allen head bolts 10 mm (0.39 in), standard tools		
8	3590	3868	3585
9	3590	3847	3581
10	3590	3847	3581

Document Title: **Recovering**	Function Group: **176**	Information Type: **Service Information**	Date: **12-12-2023**
Profile:			

Recovering

Preparations before recovering/towing

NOTE!
If possible when recovering or towing, the engine should be running in order to ensure that braking and steering functions are operational.

WARNING

Before beginning preparations for recovering or towing, the parking brake must be applied and the wheels must be blocked to prevent the machine from rolling. Exceptional care must be taken when towing to avoid accidents resulting in personal injuries and, in the worst case, fatalities.

Recovering

- Use a towbar connected to the front or rear towing eyes on the machine when towing to a suitable location or passable road.

Filling compressed air system

If needed, compressed air can be filled through the filler valve on the compressed air tank by the cab steps, by using air from another machine.

Releasing the parking brake

Fill the compressed air system through the filler valve on the compressed air tank by the steps to the cab.
Required min. pressure, approx. 500 kPa (5 bar) (72.5 psi).

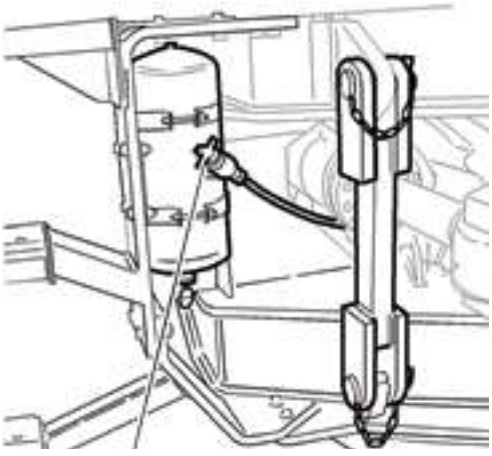


Figure 1

A. Filler valve

VOLVO
Construction Equipment

Service Information

Document Title:	Function Group:	Information Type:	Date:
Towing of machine	**176**	**Service Information**	**12-12-2023**
Profile:			

Towing of machine

- If the machine has to be towed to a workshop after recovery, use a towbar or heavy-gauge towing cable connected to the front towing eyes.
- A towbar must always be used if the machine that is to be towed has no brake function.
- The towing vehicle or machine must be at least as heavy as the machine in tow, and have sufficient engine and braking capacities to pull and brake both vehicles on uphill and downhill grades.
- Always tow the shortest possible distance.
- Maximum towing speed under all conditions is 10 km/h (6.2 mph).

NOTE!
It is not possible to start the engine by towing .

Towing

WARNING

If the engine cannot be started:

Towing should be restricted to emergencies and only the shortest necessary distance since braking and steering functions will be limited. Towing should only de done by trained personnel (see *Towing of machine* above).

If possible, transport the machine on a trailer.

Case 1 (with engine running)

The gearshift selector should be in the neutral N position and the parking brake should be released. The machine can be towed for a distance of 10 km (6 miles) without any special preparations.

Case 2 (without engine running)

Both output propeller shafts (A) must be disconnected from the dropbox since the dropbox does not receive any lubrication.

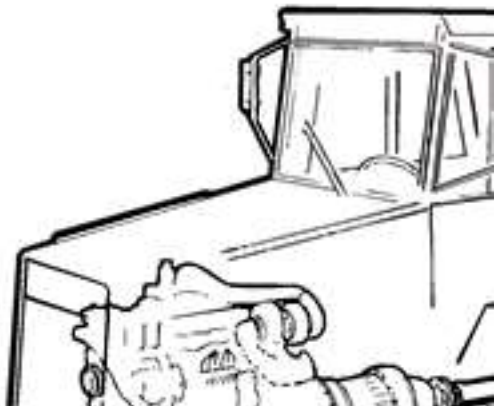


Figure 1

A. Output propeller shafts

Disconnecting the propeller shafts

- Park the machine in the service position.
- Block the wheels so that the machine cannot start rolling and release all brakes.
- Make sure that the front or rear wheels are slightly off the ground before removing the propeller shafts bolts.

After recovering/towing

The following safety procedures must be performed before disconnecting the towbar or towing cable:

- Park the machine on a level surface.
- Apply the parking brake.
- Block the wheels to prevent the machine from rolling.

Document Title:	Function Group:	Information Type:	Date:
Troubleshooting	**179**	**Service Information**	**12-12-2023**
Profile:			

Troubleshooting

Methods and assistive devices

When a malfunction or failure is suspected or confirmed, it is important to identify the cause of the breakdown as well as the specific component causing the malfunction.

A malfunction is indicated by the red central warning light illuminating on the instrument panel at the same time as the buzzer sounds or by the LED flashing on the ECU.

In case of a warning, the machine must be stopped immediately and a qualified service technician requested.

In order to facilitate and to make troubleshooting more efficient, a number of assistive devices are available.

- Contronic Information display unit
- Service display unit 999 3721
- Multimeter 11 666 140
- Multi-pin breaker box 11 668 002

In case of a malfunction, an error code (ER indication) is shown along with a value deviating from the normal. Error codes, possible causes as well as suitable actions are described in respective sections of this service manual.

When an error code or deviating value is displayed, resistance measurements are used to confirm if the malfunction is in a component, for example, a sensor, or in the cabling to the same.

VOLVO

Construction Equipment

Service Information

Document Title: **Exhaust retarder, functional description**	Function Group: **253**	Information Type: **Service Information**	Date: **12-12-2023**
Profile:			

Exhaust retarder, functional description

The exhaust brake is activated by the ECU when the switch (SW105) is on and the throttle pedal is released. The throttle pedal position is sensed by an inductive sensor (SE53) located on the throttle pedal under the cab floor. [Invalid linktarget]. The sensor sends a signal to the ECU when the throttle pedal is released. The ECU activates a solenoid valve (MA49) when it senses an engine speed from sensor SE3 (sensor SE4 indicates output speed) between 18.3 r/s (1100 rpm) and 40 r/s (2400 rpm), with a forward gear engaged and a travel speed over 2 km/h (1.3 mph).

CAUTION

Up to and incl. serial no. 1238, sensor SE53 is located on the injection pump.

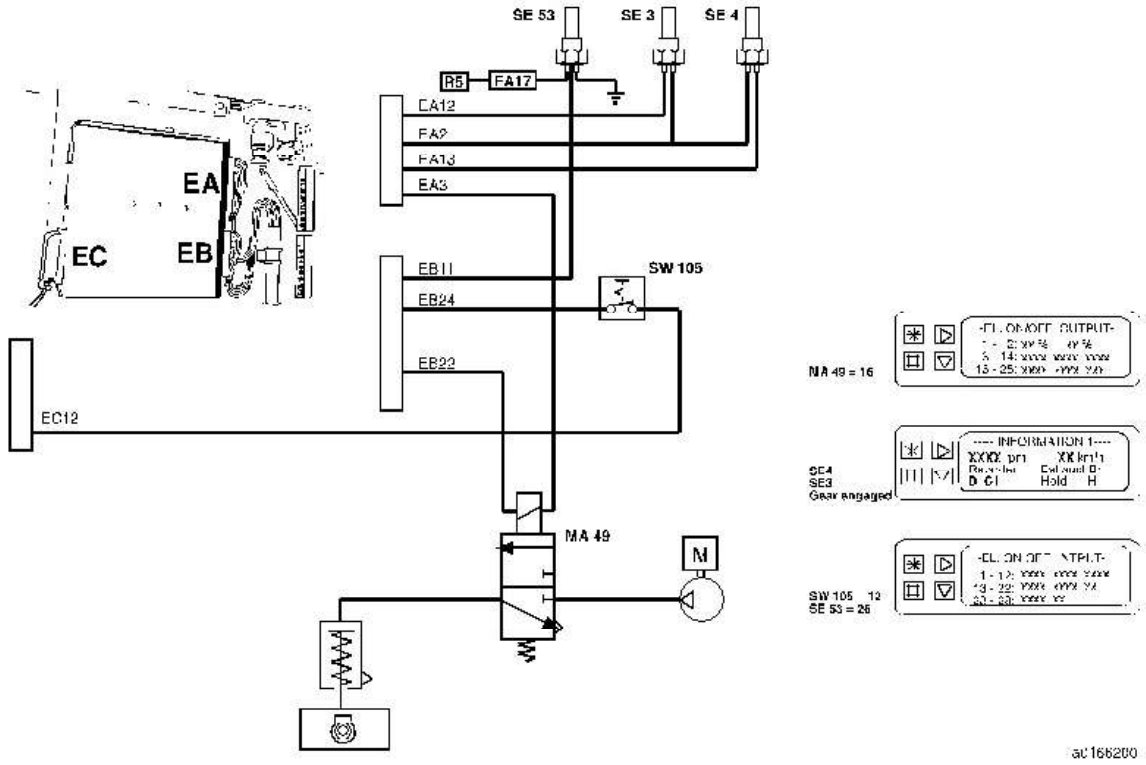


Figure 1

Document Title: **Exhaust retarder, sensor, adjusting**	Function Group: **253**	Information Type: **Service Information**	Date: **12-12-2023**
Profile:			

Exhaust retarder, sensor, adjusting

Op nbr 27123

=

1. Park the machine in the service position on a level surface.
2. Remove parts around the throttle pedal with inductive sensor according to [Invalid linktarget].

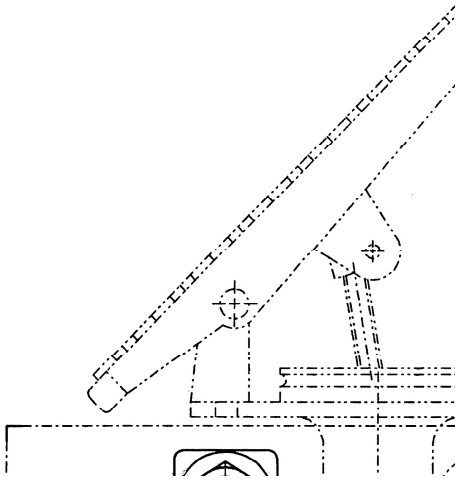


Figure 1
Throttle pedal with inductive sensor, side view

3. Adjust the distance (3 ±1 mm, 0.12 ±0.04 in) between the sensor and the indication plate, see [Invalid linktarget].

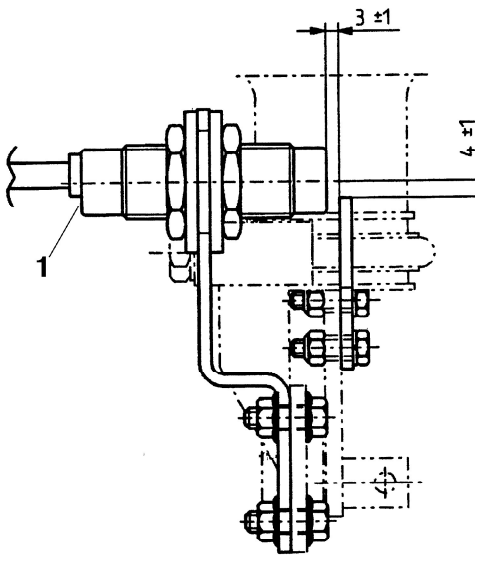


Figure 2
Throttle pedal with inductive sensor, adjusting measurements

1. Light-emitting diode

4. Adjust the distance (4 ±1 mm, 0.16 ±0.04 in) between the indication plate and the center line of the sensor, [Invalid linktarget].
   NOTE!
   The sensor's light-emitting diode lights up when the ignition key is in the starting position and the distances are correctly adjusted.

5. Fit the throttle pedal and surrounding parts according to [Invalid linktarget].

Document Title: **Exhaust retarder, sensor, changing**	Function Group: **253**	Information Type: **Service Information**	Date: **12-12-2023**
Profile:			

Exhaust retarder, sensor, changing

Op nbr 27122

=

Applies to serial no. 1239–, US 60149—

The work can be done from inside the cab, alt. from underneath the cab. Both alternatives are described in the following instructions.

Alternative 1, working from inside the cab

Removing

1. Park the machine in the service position on a level surface.

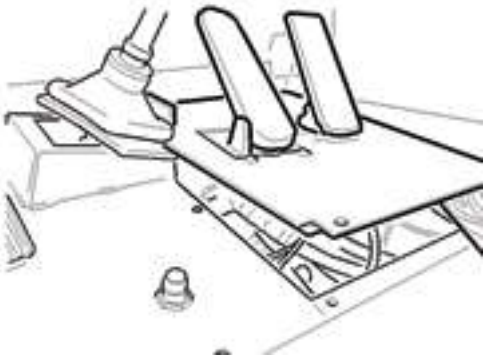


Figure 1
Floor plate with brake pedal and throttle pedal

2. Turn off the electric power with the battery disconnect switch.
3. Lift the front and rear floor mats out of the cab.
4. Remove the operator's seat and place it against the rear cab wall.
5. Remove the bolts that secure the rubber gaiter for the steering column.
6. Remove the bolts from the two front floor plates.
7. Raise the right floor plate and support it with a wooden block, see [Invalid linktarget].
8. Remove the three bolts that secure the brake pedal, insert the pedal through the hole in the floor.
9. Raise the plate toward the back so that the underside with the lower part of the throttle pedal can be reached, se

[Invalid linktarget] .

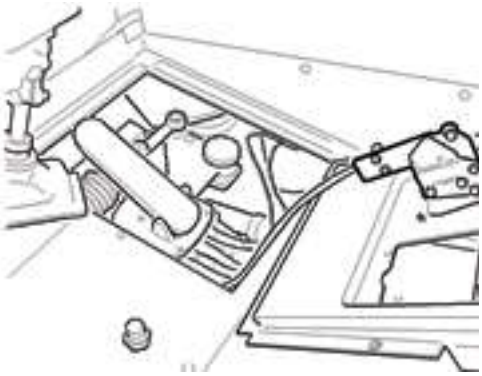


Figure 2
Floor plate, underside with throttle pedal

10. Unplug the connector from the inductive sensor.
11. Remove the inductive sensor, see [Invalid linktarget].

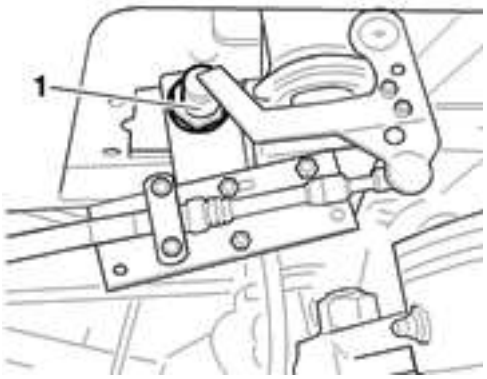


Figure 3

1. Inductive sensor

Mounting

12. Fit the new inductive sensor, [Invalid linktarget].
13. Adjust the sensor according to [Invalid linktarget].
14. Plug in the connector for the inductive sensor.
15. Turn on the electric power with the battery disconnect switch.
16. Lower the right floor plate and fit the brake pedal.
17. Fit the floor plates and the rubber gaiter for the steering column.
18. Fit the operator's seat.
19. Lay down the floor mats in the cab.

This is the sample of the manual if you need complete
manual
Click Here to download